extraction procedure has been performed on hop plants or parts. The Hoelle reference is very clear in what it teaches. It teaches to do two things. First, the hops are treated with an organic solvent (col. 2 lines 57-60) (for example, a chlorinated hydrocarbon, an ether, or acetone; col. 2 lines 60-61) to extract the essential principles of hops, namely, hop oil, lupulin, and tannin; col. 1 lines 64-65. The organic solvent and extracted materials are removed, leaving hops residue; col. 4 lines 55 and 64. The hops residue is then treated with hot water to extract water-soluble substances, including tannins and organic cell constituents (col. 4 line 64- col. 5 line 3.). The extracted materials (the materials extracted with the organic solvent, and the materials extracted with the hot water) are separately concentrated and then added separately or together during the beer making process. The most important thing to note is that the hot water extraction procedure (which it has been suggested removes pectin) is practiced only on hops residue which has been previously extracted with an organic solvent; it is not practiced on hops which were not previously subjected to an extraction procedure. In the present invention, at pages 18-21 of the specification, it has been shown that, if hops residues were previously extracted with an organic solvent such as hexane or ethanol, than the pectin subsequently extracted from such residues is not useful in improving foam stability (the data on page 21 shows 0 seconds of increased foam stability). On the other hand, as shown in Extracts B and C on page 21 of the specification, if hops are first extracted with CO_2, rather than with an organic solvent such as hexane or ethanol, then when pectins are extracted from such hops residues, such pectin is effective to improve foam stability (the data on page 21 shows 26 and 27 seconds improvement, respectively, in foam stability at 10 g/hl). Claim 18 has now been amended accordingly to more clearly define over the Hoelle reference. Since Hoelle specifies that one should use organic solvent-extracted hops residues as the starting material for the second extraction, claim 18 has been amended to specifically and clearly provide that such residues "have resulted from a CO_2 extraction procedure", thereby defining over the Hoelle organic solvent-extracted residues. Hoelle does not at all teach or suggest to perform the second extraction procedure on fresh or un-extracted hops and therefore the first part of claim 18, dealing with hop plants or parts thereof, has been left alone. Since Hoelle does not teach or make obvious the use of a CO_2 extraction procedure on the hops residues, the 103 rejection of Hoelle has now been clearly overcome.

The method claims were also rejected under Section 103 as being unpatentable over

Bukovskii, et al for the reasons set forth in the previous Office action. Attached hereto is a Declaration of Alexandra J.M.Wijsman. This Declaration describes experiments that were conducted in order to determine the effect of hop pectin and beet pectin on foam stability in beer. The experiments involved adding either hop pectin or beet pectin to a reference beer, which was a pilsner beer, and then measuring the foam stability in seconds. The respective hop pectins and beet pectins were prepared as described in paragraphs 4 and 5 of the Declaration. The results of the foam stability experiments are set forth in paragraph 7 of the Declaration. The data set forth therein clearly shows that the hop pectin provides much better foam improvement than the beet pectin. The numbers are dramatic, significant, surprising and unexpected. Clearly this data overcomes Bukovskii, et al.

In the previous Office action, the Examiner considered that exp. 7 of table 2a was an aberration. In paragraph 8 of the attached Declaration, Table 2a has been adapted by removing the data of exp. 7. The results are set forth and show clearly that the removal of this one experiment does not change the conclusions that are drawn from this set of experiments.

In the previous Office action, the Examiner indicated that applicants had tested around 10 g/hl and the claimed range varies from 0.5 to 30 g/hl and suggested that a more thorough showing would test the ends of the range. It is noted that this request has been complied with; see paragraphs 4-5 of the prior Declaration dated October 29, 1999.

During the telephone interview, the Examiner wondered why there was an extra acidic alcohol washing step in paragraph 4 of the Wijsman Declaration. It was pointed out that this was simply to increase the purity of the hop pectin preparation so that a fairer test could be run with the beet pectin. It was simply an effort to decrease the amount of non-pectin components in the hop pectin preparation. The purer the hop pectin and the purer the beet pectin, the fairer the test that would be run.

It is believed that all of the outstanding issues which the Examiner has issued have been dealt with and resolved. All of the items discussed during the September 25 telephone interview have been dealt with and complied with. If the Examiner believes that there are still things

necessary to be done, he is requested to call applicant's counsel so that such items can be quickly resolved. It is believed that the application is now in condition for allowance, which is respectfully requested.

The record reflects that the Examiner approved the drawing corrections submitted on July 30, 1999. If the Examiner believes this is not accurate, he is requested to so advise applicant, so that appropriate formal drawings can be prepared.

If there are any fees resulting from this communication, please charge said fees to our Deposit Account No. 16-0820, Order No. 29865.

Respectfully submitted,
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INDICATION OF REVISIONS TO CLAIM 18 OF
U.S. PATENT APPLICATION SERIAL NO. 08/776,321

18. (Thrice Amended) A method of preparing through a preparation process a beverage having improved foam head stability comprising the steps of (1) providing a hop pectin extract which has been formed by separating pectin [from hop plants or parts or residues thereof] (a) from (i) hop plants or (ii) parts thereof which have not been previously subjected to an organic solvent extraction procedure or (b) from residues of hop plants or parts thereof which residues have resulted from a CO_2 extraction procedure and (2) adding to said beverage during said preparation process an amount of said hop pectin extract sufficient to provide 0.5 to 30 g added hop pectin per hectoliter beverage, said quantity of added hop pectin being provided to said beverage at a stage of said preparation process effective to provide a beverage having improved foam head stability.

only shows ethanol & hexane